

STATE OF GEORGIA
TMDL IMPLEMENTATION PLAN FOR SPRING CREEK
COOSA RIVER BASIN
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TOTAL MERCURY IN FISH TISSUE

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TMDL Implementation Plans are platforms for establishing a course of actions to restore the quality of impaired water bodies in a watershed. They are intended as a continuing process that may be revised as new conditions and information warrant. Procedures will be developed to track and evaluate the implementation of the management practices and activities identified in the plans. Once restored, appropriate management practices and activities will be continued to maintain the water bodies.

INTRODUCTION

The Environmental Protection Agency (EPA) has developed a total maximum daily load (TMDL) for Spring Creek, an Etowah River Tributary (Floyd County) located in northwestern Georgia (USGS Hydrologic Unit Code (HUC) 031501041603). Spring Creek is on Georgia's 2002 Section 303(d) list for total mercury in fish tissue residue because mercury in one water column sample exceeded the freshwater aquatic life criteria of 0.12 ug/l (GADNR-EPD, 2000). The allowable load of mercury that may come into the listed segment of Spring Creek without exceeding the applicable water quality standard is 0.1 kilograms per year. The applicable water quality standard is the State of Georgia's numeric interpretation of the narrative water quality standard for protection of human health from toxic substances. This interpretation provides that total mercury in Spring Creek shall not exceed a level that will result in more than 0.3 mg/kg of mercury in fish tissue residue.

Using EPA's recently collected site-specific data for mercury for the Spring Creek segment, it has been determined that this segment is attaining the applicable water quality standard for mercury and a TMDL is not needed. However, due to the requirement by the Consent Decree in the case of *Sierra Club v. EPA*, 1:94-cv-2501-MHS (N.D. Ga.) that the State or EPA develop TMDLs for all waterbodies on the State of Georgia's current 303(d) list, EPA established this TMDL for the segment listed. In

the absence of the Consent Decree, EPA would not have established this TMDL because the waters no longer need the TMDL.

DISCUSSION OF POLLUTANT

Mercury is a toxic metal and a naturally occurring element found throughout the environment. It is commonly seen as a shiny, silver-white, odorless liquid metal. According to EPA, mercury is one of the persistent, bioaccumulative, and toxic (or PBT) pollutants. Human activity can cause a release of mercury increasing the presence of this toxic element in the atmosphere. The three forms of mercury are methyl, elemental, and inorganic. The elemental or inorganic forms are usually the forms released to the environment. Methylmercury is an organic form that is more toxic and bioaccumulates in the food chain.

The main concern is exposure of the developing fetus to mercury. Because its brain is rapidly developing, the fetus is more sensitive and women of childbearing age are at the greatest risk. Human exposure to mercury occurs through consumption of contaminated fish, as mercury concentrations in the air are usually low. Other groups at risk are subsistence fishermen and some Native American populations.

POLLUTANT SOURCES

EPA attributes 99% of the mercury in our water to atmospheric deposition. Only 1% is said to come from point sources. In water, the mercury is changed by biological processes to methylmercury which bioaccumulates in fish. The largest sources of mercury air emissions are:

- Coal-fired electrical utilities
- Municipal waste combustors
- Medical waste incinerators
- Hazardous waste combustors

Other sources of mercury include manufacturing activities, mining, and wastewater effluents.

There is not much data on mercury concentration in wastewater effluents. These point sources are listed in the TMDLs as having the potential to discharge mercury but, until recently, the method for analyzing mercury was not sensitive enough to measure the low trace levels found in effluents.

SOLVING THE PROBLEM

Mercury coming from power plant stacks and other sources is carried by the wind and can travel for great distances depending on atmospheric conditions. This is a global issue and EPA is working with other countries to limit mercury releases worldwide.

On March 10, 2005, EPA issued the [Clean Air Interstate Rule](http://www.epa.gov/air/mercuryrule/index.htm) (CAIR), a rule that will dramatically reduce air pollution that moves across state boundaries. On March 15, 2005, EPA issued the Clean Air Mercury Rule to permanently cap and reduce mercury emissions from coal-fired power plants. This rule makes the United States the first country in the world to regulate mercury emissions from utilities. Together the Clean Air Mercury Rule and the Clean Air Interstate Rule create a multi-pollutant strategy to reduce emissions throughout the United States. For more information, see the EPA website at <http://www.epa.gov/air/mercuryrule/index.htm>.

PLAN FOR IMPLEMENTATION OF TMDL

Potential impairment of Spring Creek by mercury is largely due to the deposition of mercury from the atmosphere. The TMDL evaluation examined the known potential sources of the pollutant in the watershed, including point sources, nonpoint sources, and background levels. There are no NPDES permitted facilities that discharge to the listed segment of Spring Creek.

Air point sources will continue to reduce emissions of mercury through implementation of the Clean Air Act. EPA and the regulated community will improve the mercury air emissions inventory. EPA will revise the mercury air deposition model to get better characterizations of the sources of mercury.

MONITORING PLAN

EPA and EPD will continue to collect ambient data on mercury concentrations in water, sediments, and fish. Until recently, EPA's published method for the analysis of mercury was not sensitive enough to measure mercury at low trace level concentrations. In 1998 EPA adopted a new analytical procedure (EPA Method 1631) that detects mercury at low trace level concentrations (0.5 nanograms/liter). EPA plans to use the data and information collected and developed during the next ten years to revise the Phase 1 TMDL, as necessary, to assure that the allowable load will not be exceeded.

EDUCATION/OUTREACH ACTIVITIES

The Environmental Protection Division will continue to provide guidance and education to the public on all water quality issues through outreach by the Watershed Protection

Branch. The Pollution Prevention Assistance Division is another excellent resource for this outreach. When necessary, the Department of Natural Resources will issue fish consumption guidelines. These guidelines are updated annually, identify specific stream segments where there is a problem, and list all known species of fish with mercury contamination and how often they may be consumed.

REFERENCES

Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03,
Water Use Classifications and Water Quality Standards,
Revised February 2004.

USEPA, 2004. Total Maximum Daily Load for Total Mercury in Fish Tissue Residue in Spring Creek, Etowah River Tributary, Floyd County, Georgia. February 2004.

USEPA, 2004. EPA Fact Sheet: EPA Proposes Options for Significantly Reducing Mercury Emissions from Electric Utilities, Revised January 29, 2004.

USEPA, 2005. EPA Basic Information, Clean Air Mercury Rule, March 15, 2005.
<http://www.epa.gov/air/mercuryrule/index.htm>,